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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,150	09/09/2003	Michael P. Chrisp	IL-11127	5679
7590	12/29/2005		EXAMINER	MALEVIC, DJURA
Eddie E. Scott Assistant Laboratory Counsel Lawrence Livermore National Laboratory P.O. Box 808, L-703 Livermore, CA 94551			ART UNIT	PAPER NUMBER
			2884	
			DATE MAILED: 12/29/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/658,150	CHRISP, MICHAEL P.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Djura Malevic	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 09/09/03.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 - 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 23-25,27-30,33 and 34 is/are allowed.
- 6) Claim(s) 1 - 5,7-9,11,13,15,18-20,26,31 and 32 is/are rejected.
- 7) Claim(s) 6,10,12,14,16,17,21 and 22 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 September 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/09/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

***DETAILED ACTION***

**Information Disclosure Statement**

The prior art cited in the information disclosure statement (IDS) submitted on 09/09/2003 has been considered.

**Claim Objections**

Claims 3,10 and 26 are objected to because of the following informalities:

The recitation of claim 3 is confusing with regards to the location of the rulings.

Note, the examiner perceives the grating means to have rulings immersed into the germanium surface.

Claim 10 is objected because of the misspelling of "front".

Claim 26 is objected because it includes two sentences.

Appropriate correction is required.

**Double Patenting**

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 1 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 7 of copending Application No. 10/920,880. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3 and 15 of

copending Application No. 10/646666. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a similar spectrometer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

With regards to claim 1, claims 1 and 15 of copending application 10/646666 sets forth a compact reflective spectrometer apparatus comprising an entrance slit for directing light, a first means that receives said light and focusing said light, an immersive diffraction grating diffracting said light, a second means for focusing said light and an image plane further comprising a detector array that receives said focused light. The difference between the claims is that the current application uses a mirror as the means to reflect and focus the said light however, using a mirror as a reflecting and focusing element is an obvious feature to one of ordinary skill in the art.

With regards to claim 4, claim 3 of copending application 10/646666 sets forth an immersed diffraction grating comprising equally spaced straight grooves, though 10/646666 does not disclose rulings, it is well known in the art that grooves are a mere substitute for rulings.

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 19, 20, 26, and 31 – 32 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure, which goes to make up the device, must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

With regards to claims 19 and 31, the recitation "power is added" is confusing and not clear as to what is specifically being claimed.

With regards to claims 20 and 32, the recitation "other optical materials" is confusing and not clear as to what is specifically being claimed.

With regards to claim 26, the claim is confusing and not clear because the claim includes a period. The claim must be in one sentence form only.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless –*

*(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.*

Claims 1, 4, 8 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Richman (US Patent 6,813,018 B2).

With regards to claim 1, Richman discloses an imaging spectrometer (Fig. 4) comprising an entrance slit **14** for directing light, a first mirror **18**, a diffraction grating **12**, a second mirror **28** and a detector **36** (Col. 4, Line 28).

With regards to claim 4, Richman discloses that the diffraction grating **12** has equally spaced straight ruling (Figure 1a).

With regards to claim 8, Richman discloses the first mirror **18** as a concave reflective mirror (Figure 4).

With regards to claim 9, Richman discloses the second mirror **28** as a concave reflective secondary mirror (Figure 4).

#### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Richman in view of Xiang *et al* (US Patent 6,266,140 B1).

With regards to claim 5, Richman discloses the spectrometer as claimed in claim 1, but does not expressly disclose a diffraction grating comprising curved rulings. Xiang teaches a grating with curved rulings. Richman and Xiang are analogous art because they are from the same field of endeavor, spectrometers.

Thus, it would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Richman to include a grating with curved rulings such as that taught by Xiang in order to correct field aberrations (Col.1, Line 41).

Claims 2, 3, 7,11,13 and 15 are rejected under 35 U.S.C. 103(a) as being obvious over Richman in view of Lerner *et al.* (US Pub. 20050041247 A1).

The applied reference has a common Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

With regards to claims 2, Richman discloses the spectrometer as claimed in claim 1, but does not expressly disclose the diffraction grating having rulings immersed into a wedged germanium or zinc selenide prism. Lerner *et al.* (US Pub. 20050041247

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A1) teaches a diffraction grating having rulings immersed into a wedged germanium prism [0025]. Richman and Lerner are analogous art because they are from the same field of endeavor, spectrometers.

Thus, it would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Richman to include a grating having rulings immersed into a wedged germanium prism such as that taught by Lerner in order to have diffraction efficiency [0025].

With regards to claim 3, Richman discloses the spectrometer as claimed in claim 1, but does not expressly disclose the diffraction grating having rulings immersed into a the surface of a flat germanium or zinc selenide prism. Lerner teaches a diffraction grating having rulings immersed into a flat germanium prism [0025]. Richman and Lerner are analogous art because they are from the same field of endeavor, spectrometers.

Thus, it would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Richman to include a grating having rulings immersed into a flat germanium prism such as that taught by Lerner in order to have diffraction efficiency [0025].

With regards to claim 7, Richman discloses the spectrometer as claimed in claim 1, but does not expressly disclose the diffraction grating having rulings that are diamond flycut with a blazed profile. Lerner teaches a diffraction grating having rulings that are diamond flycut with a blazed profile [0025]. Richman and Lerner are analogous art because they are from the same field of endeavor, spectrometers.

Thus, it would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Richman to include a grating having rulings that are diamond flycut with a blazed profile such as that taught by Lerner in order to have maximum diffraction efficiency [0033].

With regards to claim 11, Richman discloses a reflective imaging spectrometer (Fig 4) comprising an entrance slit 14 for directing light, a concave reflective primary mirror 18 and a concave reflective secondary 28 mirror. Richman does not disclose a wedged germanium or zinc selenide immersed grating dispersing said light. Lerner teaches a wedged germanium or zinc selenide immersed grating [0025]. Richman and Lerner are analogous art because they are from the same field of endeavor, spectrometers.

Thus, it would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Richman to include a wedged germanium or zinc selenide immersed grating dispersing said light such as that taught by Lerner in order to have maximum diffraction efficiency [0025].

With regards to claim 13, Lerner discloses the spectrometer as claimed in claim 11, but does not expressly disclose the wedged grating as transmissive. Lerner teaches a transmissive wedged grating [0032]. Richman and Lerner are analogous art because they are from the same field of endeavor, spectrometers.

Thus, it would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Richman to include a transmissive wedge grating

such as that taught by Lerner in order to allow for better thermal background reduction [0032].

With regards to claim 15, Richman discloses that the diffraction grating **12** has equally spaced straight ruling (Figure 1a).

Claim 18 is rejected under 35 U.S.C. 103(a) as being obvious over Richman and Lerner in view of Xiang *et al.* (US Patent 6,266,140).

With regards to claim 18, Richman and Lerner disclose the spectrometer as claimed in claim 11 but Richman and Lerner do not expressly disclose a wedged germanium or zinc selenide grating with curved grooves. Xiang teaches a grating with curved rulings (grooves). Richman, Lerner and Xiang are analogous art because they are from the same field of endeavor, spectrometers.

Thus, it would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Richman to include a grating with curved rulings such as that taught by Xiang in order to correct field aberrations (Col.1, Line 41).

#### **Allowable Subject Matter**

Claims 6, 10, 12, 14, and 16, 17, 21 –25, 27– 30 and 33 – 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 23 - 34 are allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

With regards to claim 6, the prior art of record does not disclose or suggest a spectrometer wherein, the immersive diffraction grating has rulings that are cut on the plano side of a wedged plano-convex or plano-convex lens in combination with the rest of the claim limitations.

With regards to claim 10, the prior art of record does not disclose or suggest a spectrometer that has a front and a back, wherein the entrance slit and the detector are located at the front and the second mirror is located at the back, in combination with the rest of the claim limitations.

With regards to claim 12, the prior art of record does not disclose or suggest a spectrometer wherein, slit curvature correction is provided by a wedged germanium or zinc selenide grating having a wedged angle, in combination with the rest of the claim limitations.

With regards to claim 14, the prior art of record does not disclose or suggest a spectrometer wherein, the concave primary and secondary mirrors have sonic or aspheric sections in combination with the rest of the claim limitations.

With regards to claim 16, the prior art of record does not disclose or suggest a spectrometer wherein, the wedged germanium or zinc selenide grating is a holographic grating providing aberration and distortion correction in combination with the rest of the claim limitations.

With regards to claim 17, the prior art of record does not disclose or suggest a spectrometer wherein, the wedged germanium or zinc selenide grating has non-uniform groove spacing in combination with the rest of the claim limitations.

With regards to claim 22, the prior art of record does not disclose or suggest a spectrometer wherein, a lens is added in front of the detector to control the field curvature in combination with the rest of the claim limitations.

With regards to claim 23, the prior art of record does not disclose or suggest a spectrometer comprising a wedged germanium or zinc selenide grating having a wedged angle providing slit curvature correction, a convex reflective tertiary mirror, a concave quaternary mirror in combination with the rest of the claim limitations.

Claims 24, 25, 27– 30 and 33 – 34 are allowable because they further limit claim 23.

References, such as Lerner (US Pub. 20050248760, 20050052647) and Chrisp et al. (US Pub. 20050073680 A1) discloses many of the claims limitations, however these references do not constitute as prior art because of there filing dates.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Djura Malevic whose telephone number is (571) 272-5975. The examiner can normally be reached on m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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